REMARKS

Claims remaining in the present patent application are numbered 1-24. Claims 1, 10, and 16 have been amended. The rejections and comments of the Examiner set forth in the Office Action dated December 24, 2004 have been carefully considered by the Applicant. Applicant respectfully requests the Examiner to consider and allow the remaining claims.

35 U.S.C. §102 Rejection

The present Office Action rejected Claims 1-4, 8, 16-19, and 23 under 35 U.S.C. 102(e) as being anticipated by Zinky et al. (U.S. Patent No. 6,691,148 B1). Applicant has reviewed the above cited reference and respectfully submits that the present invention as recited in Claims 1-4, 8, 16-19, and 23, is neither anticipated nor rendered obvious by the Zinky et al. reference.

Independent Claims 1 and 16

Applicants respectfully point out that independent Claim 1 and 16 each recite that the present invention includes a communication network for servicing at least one application environment in which service level objectives that are dynamically changeable are satisfied. In particular, independent Claim 1 recites that the present invention includes, in part:

b) determining on an individual basis whether a plurality of service level objectives are satisfied, each of said plurality of service level objectives associated with one of said plurality of components, wherein each of said plurality of service level objectives is measured over a corresponding interval locally at a corresponding component without influence from the behavior of other components; and

c) determining and providing the number of computational resources from said plurality of computational resources in each of said plurality of components in order to satisfy said plurality of service level objectives.

Additionally, independent Claim 16 recites that the present invention includes, includes, in part:

a dynamic resource manager residing coupled to said application environment for determining and providing the number of computational resources from said plurality of computational resources in each of said plurality of components in order to satisfy quality of service objectives for said application, wherein each of said quality of service objectives is measured over a corresponding interval locally at a corresponding component without influence from the behavior of other components.

The present invention pertains to a method and system for enabling resource sharing in a communication network having a plurality of application environments. In particular, independent Claims 1 and 16 each recite that the number of computational resources in each of a plurality of components of an application environment are determined and provided to satisfy quality of service objectives for each component servicing an application environment. Furthermore, independent Claims 1 and 16 recite that the quality of service objectives are measured over a

corresponding intervals locally at corresponding components without influence of the behavior of other components.

Applicants respectfully note that the prior art reference, Zinky et al., does not teach nor suggest the present method or system that comprises, in particular, the satisfaction of quality of service objectives that each is measured over a corresponding interval for a corresponding component without influence from other components, as claimed in independent Claims 1 and 16 of the present invention.

In contrast to independent Claims 1 and 16 of the present invention, the Zinky et al. reference, discloses a framework for providing quality of service (QoS) requirements in a distributed object-oriented computer system. In particular, the Zinky et al. reference discloses a contract that selects a level of quality of service that corresponds to a current quality and adjusts the current quality of service to obtain the required quality of service as needed. Specifically, the Zinky et al. teaches that the quality of service refers to the amount of resources that are devoted to satisfying the client object's request. For instance, the Zinky et al. reference teaches in Figure 4 that the client object seeks to satisfy the desired QoS level of a remote object in order to maintain the specified number of replicas of the remote object. (See col. 6, lines

42-56 of the Zinky et al. reference) As such, the Zinky et al. reference teaches that the client object determines and influences the number of replicas of a remote object when trying to satisfy QoS.

The present invention, on the other hand, claims a communication network that comprises a plurality of computational resources that services at least one application environment. Distinctively, the number of computational resources are determined and provided locally for each of a plurality of components servicing an application environment in order to satisfy a plurality of service level objectives. For instance, for each component, a corresponding service level objective is measured over a corresponding interval without influence from the behavior of other components. That is, in embodiments of the present invention other components do not request a particular service level objective for a particular component, as is taught in the Zinky et al. reference.

Also in embodiments of the present invention as recited in independent Claims 1 and 16, the quality of service objectives are measured over a corresponding interval. Examples of intervals are defined in the specification include time and data collected, etc. (See Specification page 15, lines 11-20). This is in direct contrast to the Zinky et al. reference which repeatedly provides that the

QoS refers specifically to the amount of resources devoted as specified by a client object. (See col. 4, lines 45-50; and col. 6, lines 42-48 of the Zinky et al. reference).

Furthermore, the Zinky et al. reference teaches that the QoS is defined by the number of resources requested, and that the number of replicas changes only when there is a change or transition in the QoS to meet demands on the system. That is, only when the QoS level changes is there a reflective change in the number of resources required by a QoS. In contest, embodiments of the present invention disclose that a number of computational resources are determined and provided in order to satisfy a quality of service level objective that is measured over a corresponding interval, as is recited in independent Claims 1 and 16. That is, the number of computational resources may change for a particular quality of service objective according to demands on the system.

Thus, Applicant respectfully submits that the present invention as disclosed in independent Claims 1 and 16 is not anticipated by the Zinky et al. reference, and is in a condition for allowance. In addition, Applicant respectfully submits that Claims 2-9 which depend from independent Claim 1 are also in a condition for allowance as being dependent on an allowable base claim. Similarly, Applicant respectfully submits that Claims 17-24 which

depend from independent Claim 16 are also in a condition for allowance as being dependent on an allowable base claim.

35 U.S.C. §103 Rejection

The present Office Action rejected Claims 5-7, and 20-22 under 35 U.S.C. 103(a) as being unpatentable over Zinky et al. Also, Claims 9-15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zinky et al. as applied to claim 1 above, and further in view of Friedrich et al. (U.S. Patent No. 6,003,079). Applicant has reviewed the above cited references and respectfully submits that the present invention as recited in Claims 5-7, 9-15, 20-22, and 24, is neither anticipated nor rendered obvious by the Zinky et al. reference taken alone or in combination with the Friedrich et al. reference.

Dependent Claims 5-7 and 20-22

Claims 5-7 depend from independent Claim 1, now allowable as argued above. Also, Claims 20-22 depend from independent Claim 16. Thus, Applicants respectfully submit that Claims 20-22 which depend from independent Claim 16, as currently amended, are also in a condition for allowance as being dependent on an allowable base claim.

Independent Claim 10

Regarding Independent Claim 10, embodiments of the presently claimed invention disclose a method for enabling resource sharing in a communication network having a plurality of computational resources that support a plurality of application environments, as presently claimed. In particular, independent Claim 10 of the present invention recites, in part:

> In a communication network having a plurality of computational resources for supporting a plurality of application environments, a method for enabling resource sharing, comprising:
> a) receiving a first response-time metric from a first component in a plurality of components that form a first application environment in said plurality of application environments;
> b) comparing said first response-time metric to a first service level objective associated with said first component, wherein said first service level objective is measured over an interval without influence from the behavior of other components; and
> c) optimizing the number of computational resources in said plurality of computational resources that are assigned to said first component in order to satisfy said first service level objective. (Emphasis Added)

The claimed embodiment of independent Claim 10 pertains to a method of enabling resource sharing. More particularly, the present invention as claimed compares a first response-time metric to a first service level objective and optimizes a number of computational resources to satisfy the first service level objective. More particularly, independent Claim 10 recites that the first

service level objective is measured over an interval without influence from the behavior of other components.

For analogous reasons set forth above with respect to the 102 argument, Applicants respectfully note that the Zinky et al. reference does not teach nor suggest the present invention as claimed in which a service level objective that is measured over an interval without influence from the behavior of other components is satisfied by optimizing the number of computational resources locally in a first component.

In addition, the Friedrich et al. reference fails to overcome the shortcomings of the Zinky et al. reference. In particular, the Friedrich et al. reference teaches a system and method for continuously measuring quality of service in a federated application environment. However, the Friedrich et al. reference does not teach the optimization of a number of computational resources assigned to a first component that supports a first application environment in order to satisfy a first service level objective that is measured over an interval without influence from the behavior of other components, as recited in independent Claim 10.

Thus, Applicant respectfully submits that the Zinky et al. reference taken alone or in combination with the Friedrich et al. reference does not anticipate or render

obvious the method of the present invention as recited in independent Claim 10. Accordingly, Applicant respectfully submits that independent Claim 10 overcomes the cited references, and as such Claims 12-15 which depend on independent Claim 10 are also in a condition for allowance as being dependent on an allowable base claim.

CONCLUSION

In light of the amendments and arguments presented herein, Applicants respectfully request reconsideration of the rejected Claims for allowance thereof.

Based on the arguments presented above, Applicants respectfully assert that Claims 1-24 overcome the rejections of record. Therefore, Applicant respectfully solicits allowance of these Claims.

The Examiner is invited to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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